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622 GASTROINTESTINAL ADAPTATIONS TO DIET VARIATION IN RED-WINGED BLACKBIRDS.

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Red-winged blackbirds *Agelaius phoeniceus* seasonally shift diet from grains to insects, thus shifting positions along a continuum of diet types, from energy-dilute to energy-dense. Anatomical adaptations of the gut to experimental variation in diet quality were examined. In a CRD, 10 adult males each were fed for 5 wks 1 of 3 diets that varied in energy density by mass or volume. Birds fed the energy-dense diet had the smallest measures of intake, gizzard mass, small intestine (SI) length, SI basement membrane thickness, villus length, and SI diameter when compared with birds fed 2 energy-dilute diets. Birds fed the diet that was energy-dilute by volume had the largest measures of gut anatomy. Variation in microscopic anatomy (villus length) may have greater significance than variation in gross anatomy to a bird faced with a need to increase the extent of digestion or absorption if the diet is poor or metabolic demand is high.